



UNITED STATES NAVY

MEDICAL NEWS LETTER

Vol. 43

Friday, 15 May 1964

No. 10

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United States Navy
MEDICAL NEWS LETTER

Vol. 43

Friday, 15 May 1964

No. 10

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Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

Change of Address

Please forward changes of address for the News Letter to: Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda, Maryland 20014, giving full name, rank, corps, and old and new addresses.

The issuance of this publication approved by the Secretary of the Navy on 28 June 1961.

Outpatient Treatment of Pilonidal Disease

By CAPT William C. Turville MC USN, USNH, Camp Lejeune, N. C.,
April 3, 1964.

Pilonidal disease of the intergluteal fold has long been a problem for military surgeons. The methods of treatment are legion, running from simple incision through wide excision, rotation of flaps and skin grafting—a case of "as many methods as there are doctors." The bigger problem, however, is the loss of manpower occurring during the treatment of this rather simple and superficial disease. It was this accumulation of hospital days, the stagnant "pilonidal wards" with their long term occupants, and the "siphoning off" of badly needed nurses and corpsmen, that prompted the surgeons of the hospital at Camp Lejeune to search for a more practical means of caring for the patient with pilonidal disease.

Patey and Scarff (1) in 1946 were among the first to question the etiology of pilonidal disease and disputed the theory of congenital origin. They held that the pilonidal sinus is an acquired sinus, secondary to ingrown hair from the intergluteal skin with added infection, abscess, and/or chronic granuloma. Many others (2, 3, 4) have come to a similar conclusion that the pilonidal cyst is indeed not a cyst, but a foreign body granuloma. Medical literature contains numerous articles expanding this view, many challenge the need for extensive excisional surgery (5, 6), several have proposed and detailed a plan of treatment on an outpatient basis.

At the U. S. Naval Hospital, Camp Lejeune, North Carolina, in the twelve months preceeding November 1961, there were 48 patients admitted primarily for the treatment of pilonidal disease. The average hospital stay for these patients was 61.7 days, the range was 13 to 135 days. Wide excision with secondary epithelization was the principal mode of therapy.

In November 1961, outpatient treatment was adopted as the primary means of therapy. For various reasons, usually severe systemic reaction to a large pilonidal abscess, or the distances involved between duty station and hospital made outpatient visits impractical, there were a few patients hospitalized. In 1962, eight patients and in 1963, seven patients were admitted for pilonidal disease; the average hospital stay in these cases was 10.3 days. Compared to the 1961 admissions with 61.7 days average, this represents in 1962 and in 1963 a saving of 2206 hospital days for each year. During this same period there was a marked increase in the total number of patients treated. In the surgical clinic (outpatient treatment) 105 new patients with pilonidal disease were treated in 1962 and 110 new patients in 1963. The simplicity and the good results with outpatient management has prompted doctors to broaden their indications and not to wait for the occurrence of infection or abscess. Doctors feel that the presence of a definite "cyst" is sufficient to recommend treatment.

The recurrence rate is very low. Follow-up data has been very difficult to obtain due to the frequent change of duty station among the clientele; however,

indications are that the recurrences will be less than 5% and will be directly proportional to the level of personal hygiene.

Briefly the regimen for the outpatient treatment employed is as follows:

First Visit:

1. Preparation of sacro-coccygeal area with Betadine® or Phisohex® scrub.
2. Field block using 1% Lidocaine.
3. Incise and lay the pilonidal tract open to the "foreign body granuloma." Search for side tracts, which are laid open in continuity. Remove hair, detritus, grumous tissue and curette off infected granulation.
4. Hemostasis is secured by tight packing with iodoform impregnated gauze or similar packing.
5. Dry sterile dressing of folded gauze is taped in place.
6. The instruments for this procedure are simple and common to all surgical treatment rooms and sick bays. A groove guide and medium small curettes are useful additions.

Second Visit:

1. Two days later the pack is removed, and the "cyst cavity" again inspected for remaining hair, etc. which can then be wiped away.
2. The cavity is then cauterized with liquid phenol to remove residual granulations, followed by alcohol sponging to remove excess phenol.
3. The wound is repacked with iodoform gauze and a light dressing.
4. Analgesics are seldom necessary even following the initial step. Phenol is its own anesthetic and the discomfort associated with its use is only momentary.

Third Visit:

1. Two days later, cavity is inspected and cleansed with hydrogen peroxide and a simple dressing is applied.
2. The patient is carefully instructed as to his future course and management as follows:
Sitz baths twice a day.
Once a day he is to have the cavity carefully cleaned with hydrogen peroxide swabs. This can be readily accomplished by the corpsmen at his local dispensary. The instructions for these corpsmen require only a few minutes, and is well rewarded by the improved care they render.
3. As necessary the surrounding area is shaved to remove any hair more than a stubble.

The patients are seen in follow-up at the Surgical Clinic once a week until healing has occurred. These visits are to insure that proper cleaning and shaving have been followed. The need for personal cleanliness is stressed at each of these visits.

Healing usually is complete in 3 to 5 weeks; during this period the patient has been on a "light duty status." While these patients are not fully functional from a military sense, they are employed as messengers, orderlies and in

other light tasks, whereby they are serving some useful function and not the total loss they were when hospitalized.

The author believes that the outpatient treatment of pilonidal disease represents a safe, simple and effective method which has resulted in a great reduction of hospital days and a saving in manpower.

References

1. Patey, D.H. and Scarff, R.W. : Pathology of Postanal Pilonidal Sinus: Its Bearing on Treatment, *Lancet* 2: 484, 1946.
2. Raffman, Richard: A Re-evaluation of the Pathogenesis of Pilonidal Sinus, *Ann. of Surgery*, 150: 895-903, 1959.
3. Mulholland: Current Surgical Management, Vol. 2, W.B. Saunders Co., Philadelphia, 1960.
4. Hardaway, R.M. : Pilonidal cyst: Neither pilonidal nor cyst, *Arch. Surgery*, 76: 142, 1958.
5. Hardaway, R.M. : Pilonidal Cyst, Misnamed, Misunderstood, Mistreated, *U. S. Armed Forces M. J.*, 7: 5, 6, 1956.
6. Rickles: "The Office Treatment of Pilonidal Sinus," *J International College of Surgeons* 36: 71-75, 1961.

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Otitis Externa: Prophylaxis and Treatment

By Ben H. Jenkins, MD, Newman, Georgia. *The Eye, Ear, Nose and Throat Monthly* 43: 47-50, January 1964.

An antibiotic-free topical agent to prevent otitis externa—the widespread "swimmer's ear" which is most prevalent in hot weather—"can safely be used day after day and retain its effectiveness while giving adequate protection" according to Dr. Jenkin's report in this article.

Summarizing reports by other researchers as well as his own experience with the agent—a propanediol-acetic acid formulation (VoSol[®] Otic Solution)—the author is impressed by its effectiveness for both prophylactic and therapeutic use. He does not advocate the use of antibiotic and steroid-containing preparations for prophylactic purposes, since "they could invite sensitization and emergence of resistant strains." Reports include extensive trials covering several thousand exposures in swimmers and campers.

The bactericidal and fungicidal range of the preparation used is so complete that as yet no resistant organisms have been isolated. In addition, the retention of desirable acidity and the hygroscopic properties of propylene glycol permit absorption of water and better penetration because of cerumen-softening action.

The author stresses meticulous cleansing of the ear canal to insure penetration of the preparation to the affected areas. In over 500 cases "results

have been favorable when patients were correctly selected and when adequate exposure to the ear solution has been assured. " In those patients where an underlying dermatosis is responsible for the inflammation the solution is used with one percent hydrocortisone added (VoSol[®] HC Otic Solution).

In otitis externa, Dr. Jenkins considers "the propanediol-acetic acid formulation discussed here affords a wider antimicrobial range and is fraught with fewer pitfalls than antibiotic therapy. "

* * * * *

Spontaneous Spinal Epidural Hematoma Coincident
with Whooping Cough

By LCDR Frederick E. Jackson* MC USN, Department of Neurosurgery,
USNH, San Diego, Calif. Journal of Neurosurgery XX(8): 715-717, 1963.

This remarkable case report describes the clinical course of a 14-month old child with partial paralysis of the lower extremities (paraparesis) which occurred concurrently with a severe seizure of whooping cough. The causative condition was a large hematoma in the epidural space, extending from T-1 to T-5, which was clearly demonstrated by a Pantopaque myelogram. Laminectomy was performed and the clot and its covering membranes successfully removed. Postoperative course was excellent, and all functions returned to normal.

Case Report

A 14-month old daughter of a Marine Corps sergeant was admitted to the U. S. Naval Hospital in San Diego, California, Sept. 21, 1962 with a diagnosis of meningismus. The patient had been in excellent health until 3 weeks previously. At that time she had a mild coryza and a fever and shortly thereafter entered into the paroxysmal stage of whooping cough.

She was first seen at the Naval Dispensary in Yuma, Arizona where the illness was diagnosed clinically and bacteriologically as whooping cough, the causative organism being Hemophilus pertussis. At the onset of the illness, the child had received only one injection of diphtheria-pertussis-tetanus vaccine and this had been given only 1 week prior to the onset of her symptoms. After 2 days of extremely severe and persistent coughing, associated with intermittent mild epistaxis, the mother noted that the child was having difficulty in walking and manifested progressive weakness and poor coordination in the lower extremities. This was followed by abdominal distention for which the child was hospitalized at a civilian hospital in Yuma, Arizona and treated conservatively with parenteral fluids. She recovered quickly from the abdominal distention but because of progressive ataxia and paraparesis, she was transferred to the U. S. Naval Hospital in San Diego.

* Present address: U. S. Naval Hospital, Charleston, South Carolina.

Examination. The patient was a lethargic 14-month old female who appeared to be in no distress while lying in bed. The temperature was 99.9°F., pulse rate 140, and respiratory rate 24. The cranial nerves were normal; in particular the pupils were round, regular and equal and reacted well to light. There was no papilledema. Finger-to-nose test was performed well but the child was able to walk only with assistance. She manifested a marked weakness in both lower extremities and dysmetria of the lower extremities with a resultant wide-based ataxic gait. Interestingly enough, there was no sensory deficit. There was unsustained patellar and ankle clonus in both lower extremities. Knee and ankle reflexes were hyperactive but equal, and were definitely more active than the deep tendon reflexes in the upper extremities. Both the upper and the lower superficial abdominal reflexes were absent. Brudzinski's and Kernig's signs were absent but the sign of Babinski was present, bilaterally.

Hematocrit was 35. Count of white blood cells was 7,000 with 74 % lymphocytes. Shigella, Salmonella, Staphylococcus aureus and Escherichia coli cultures of the stool were negative. Roentgenograms of chest, skull, and thoracic spine upon admission were normal. In particular there was no evidence of increased intracranial pressure nor was there evidence of interpedicular widening in the spinal canal. Lumbar puncture revealed evidence of a complete block with no rise in pressure of fluid on bilateral jugular compression. The spinal fluid contained 1,100 mg per cent protein. A lumbar myelogram, utilizing Pantopaque, revealed a complete extradural block at the level of T-5.

Operation. On the same day that myelography was done, a thoracic laminectomy was performed from T-2 through T-5. Upon removing the thoracic lamina, a very large and tense blue-domed membrane was encountered in the epidural space, which, upon opening, was found to contain black, liquefied blood. The liquefied blood was drained and then the membranes were removed in their entirety. They were completely extradural in location and were not firmly adherent to the dura mater. Their surgical removal was easy technically. The membranes extended from the level of T-1 through T-5. Microscopic examination of the membranes proved them to be organizing membranes from an epidural hematoma. Immediately after the release of the pressure upon the spinal cord by the removal of the liquefied blood the previously compressed cord gradually regained its normal position. A No. 8 French catheter was then passed cephalad and caudad after the removal of the hematoma and membranes. There was no evidence of further obstruction.

Course. The patient did extremely well. By the 3rd postoperative day she was walking unaided. Her sutures were removed on the 7th day after the operation. She was discharged on Oct. 24, 1962 with the wound well healed. At the time of discharge she no longer manifested patellar or ankle clonus nor was the sign of Babinski present. Knee and ankle reflexes were still relatively more active than the deep tendon reflexes of the upper extremity although less active than prior to surgery. She was walking unaided with only a suggestion of ataxia. She was discharged to be followed in the Neurosurgery Outpatient Clinic and upon subsequent evaluation she has manifested a complete recovery.

Discussion

"Although neurological deficits have been described coincident with whooping cough, these generally have taken the clinical form of cerebral hemorrhage or intracranial meningeal hemorrhage. Spinal subarachnoid hemorrhage coincident with pertussis is extremely rare but should be considered by the clinician when presented with an infant who has recently had an attack of pertussis and who then manifests signs of spinal-cord compression. Two factors may have synergised to produce the epidural hematoma in this patient. The first is the propensity for the *Hemophilus influenzae* to liberate an angiotoxin. The second is the recurrently elevated venous pressure and venous distention in the spinal epidural veins coincident with the paroxysms of coughing.

The bleeding in most reported cases of spinal epidural hemorrhage is the result of trauma, bleeding tendencies, or anticoagulation therapy, as in rupture of a pre-existing spinal hemangioma. Occasionally "spontaneous" spinal epidural hemorrhage may occur without an obvious inciting cause."

* * * * *

Blood Coagulation*

Extracted from the Training Manual, "Hematology, "** of the U. S. Naval Medical School, NNMC, Bethesda, Md.

The Antihemophiliac Factors (Plasma Factors) (PTA, PTC, and AHG)

The first antihemophiliac plasma factor which was discovered was antihemophiliac globulin (AHG). Until recently, all hemophilia was thought to be due to a deficiency of this factor as normal plasma would correct the clotting defect. In 1952 a case of hemophilia was found, and in the course of the investigation the plasma of a known hemophiliac was mixed with the blood of the patient. The result was correction of the clotting defect. On the basis of this case, it was postulated that two factors were present in normal blood, and one factor was missing from each of the hemophiliacs. Subsequently, still another patient was found whose blood corrected the clotting defect of each of the other two, and a third factor was postulated. The second and third factors were named plasma thromboplastin component (PTC) and plasma thromboplastin antecedent (PTA) respectively. A lack of PTC has been termed "Christmas Disease," after the patient in whom it was first encountered.

Interference with the clotting mechanism in hemophiliacs and hemophilioid diseases is primarily in Step 1, where formation of thromboplastin is

* Continued from U. S. Navy Medical News Letter 43(9): 10-15, May 1, 1964.

** Revised Edition-1962.

defective. The role of the plasma factors would seem more crucial in the formation of thromboplastin than thrombocytes, since in hemophiliacs and hemophilioid diseases the actual coagulation of the blood is prolonged, whereas it is normal in thrombocytopenia.

In the usual case of thrombocytopenia, sufficient thromboplastin is elaborated for blood clotting to take place within the normal length of time even though the thrombocytes are diminished. The prothrombin consumption is delayed, however, which means that no excess thrombocytes are present. Markedly reduced thrombocytes will also delay the clotting, though it is unusual to find thrombocytopenia of such severity.

True hemophilia presents a deficiency of antihemophilic globulin of such degree as to cause delayed clotting, as well as defective prothrombin consumption. Normally, blood contains large amounts of all clotting factors, marked deficiencies must be present in order to delay the clotting mechanism.

Fortunately, certain properties of the plasma factors are sufficiently characteristic to be of diagnostic significance. It has been found that if normal human plasma is mixed with insoluble barium sulfate, the barium sulfate will absorb and remove from the plasma the PTC and prothrombin. It has also been found that normal human serum which has been allowed to stand for 48 hours will contain neither AHG nor prothrombin. These properties may be schematically represented as follows:

	<u>Normal BaSO₄ treated plasma</u>	<u>Normal 48-hr. old serum</u>
AHG	Present	Absent
PTC	Absent	Present
PTA	Present	Present

It is evident from the scheme that if normal BaSO₄ treated plasma and normal 48-hour old serum are added to the blood of persons with a clotting abnormality, the defective component can be determined by whether or not the clotting defects (clotting time and prothrombin consumption time) are corrected. This may be represented as follows:

	<u>Normal BaSO₄ treated plasma</u>	<u>Normal 48-hr. old serum</u>
AHG defect	Corrected	Not corrected
PTC defect	Not corrected	Corrected
PTA defect	Corrected	Corrected

Prothrombin Consumption Test

In phase 2 of the coagulation scheme, prothrombin is converted to thrombin by the action of thromboplastin. Prothrombin is present in whole blood in excess

quantities, so that at the moment the actual clot occurs, unconverted prothrombin remains. The excess prothrombin is converted by thromboplastin as time passes, and measurement of this is called the prothrombin consumption test. If there is any abnormality in thromboplastin formation, the conversion of prothrombin to thrombin will be delayed or absent. The methods used for this assessment depend on comparing the coagulant ability of plasma and serum by the addition of thromboplastin and calcium chloride at a determined time after coagulation has occurred. It is empirical and not a true measure of prothrombin. It is of interest that, in the test tube, only part of the prothrombin is converted to thrombin in coagulation of all the fibrinogen of the blood.

It has been found that in the vast majority of normal individuals less than 20% of the prothrombin present in the plasma remains in the serum one hour after coagulation of the blood has occurred. In hemophilia and thrombocytopenic purpura, prothrombin consumption is much less complete with more than 70% remaining.

Though thromboplastin is normally present in the tissue fluids, it will not be elaborated in the blood if the first step of the clotting mechanism is defective. Thrombocytes are essential to the normal evolution of thromboplastin; hence, reduced thrombocytes cause a delayed prothrombin consumption.

In deficiencies of the antihemophilic factors, there is also a deficiency of thromboplastin formation due to lack of antihemophilic globulin, plasma thromboplastin component or plasma thromboplastin antecedent. The prothrombin consumption is poor. In cases of afibrinogenemia, prothrombin consumption is normal.

Prothrombin

Prothrombin is utilized in the clotting mechanism in Step 2. A prothrombin defect is reflected in a prolonged one-stage prothrombin time and an abnormal clotting time. The prothrombin consumption curve is normal, since the prothrombin present is adequately consumed within the normal length of time.

Prothrombin is formed primarily in the liver, and its production is dependent upon adequate absorption of vitamin K. Dietary deficiency is never responsible for hypoprothrombinemia, as the chief source of vitamin K is in the gastrointestinal tract where it is synthesized by the intestinal flora. The presence of bile is necessary for the absorption of vitamin K, which is a fat soluble vitamin. It is therefore evident that obstruction of the biliary tract, biliary and gastrocolic fistulae, certain diseases of the liver, and certain disorders affecting the absorption of fat (e. g., sprue) will be accompanied by deficiency of vitamin K. Any of these disorders will result in hypoprothrombinemia.

Hypoprothrombinemia may be induced by the administration of dicoumarol and similar drugs. It is important to remember that these drugs first lower the level of Factor VII. PTC depression occurs later. The drugs do not directly intervene to delay the clotting of blood, and therefore are not effective anticoagulants in vitro. They act primarily to prevent the formation of prothrombin, Factor VII and PTC in the liver. Administration of dicoumarol does not

immediately affect the clotting mechanism as one or two days are required to utilize the previously formed factors. Salicylates produce hypoprothrombinemia by the same mechanism, but are much less powerful, and serious bleeding is rarely encountered as a result of ingestion of salicylates.

Congenital hypoprothrombinemia may also be present. This condition must be kept in mind when dealing with bleeding problems of infancy and childhood.

Prothrombin Time

This test is a measure of the speed of conversion of prothrombin to thrombin. It is important (1) in evaluating the clotting mechanism of patients on dicoumarol or similar therapy and (2) in the evaluation of liver disease and hemorrhagic diathesis. This test is the most useful single test of clotting function. The test as originally interpreted was based on one very important assumption—that the speed of prothrombin conversion, in the presence of tissue extract, is uniform in all plasma samples. It is now widely recognized that this assumption is not justified. The speed of prothrombin conversion is affected by two factors, Factor V and Factor VII.

Euglobulin Lysis Time

The euglobulin precipitate contains the bulk of the plasma fibrinolytic activity but little plasma inhibitor activity. Normal individuals should show complete lysis of the clot in 200-300 minutes. Times beyond 300 minutes indicate diminished activity. Times between 100 and 300 minutes indicate enhanced activity. Times below 100 minutes indicate rather marked enhancement of fibrinolytic activity. Error is introduced, however, if the plasma fibrinogen level is diminished sharply. If fibrinogen is low, lysis time will be shortened for this reason. In patients with times below 100 minutes in whom question of this possibility exists, a qualitative or quantitative fibrinogen estimation should be carried out on the same blood sample by the blood chemistry section of the laboratory department.

Whole Blood Clot Lysis

Unless there is bacterial contamination, clots undergo minimal lysis in a 24 hr. period. Dissolution of the clot during the 24 hour period indicates excessive fibrinolytic activity.

Semiquantitation can be achieved with this test by (1) determining the hematocrit of the original blood sample, (2) determining the "hematocrit" of the serum following clot lysis.

$$\frac{\text{Post-lysis serum "hematocrit"}}{\text{Pre-lysis (true) hematocrit}} \times 0.5 \times 100 = \text{less than 15\% (normally)}$$

The preceding is dependent on release of red cells from the clot as a result of fibrinolysis. Therefore do not unduly disturb any remaining clot when aspirating the sample for testing. Normally, a clot releases less than 15% during a 24 hour period.

Factors V and VII

Factor V and Factor VII deficiency are primarily congenital defects, and their clinical pictures may bear a striking resemblance to true hemophilia.

In the second phase of coagulation, thromboplastin in the presence of Factor V, Factor VII, and calcium converts prothrombin to thrombin. The calcium is necessary for the action of Factor VII. Deficiencies of either prothrombin, Factor V or Factor VII, will result in a prolongation of the clotting time and the prothrombin time. This immediately places the difficulty in phase 2 rather than phase 1 (Figure 1)*. This is true because, in doing the prothrombin time, one does not depend upon thromboplastin generation, but supplies thromboplastin in doing the test. For this reason the prothrombin time is normal when the defect is with thromboplastin generation. When both the clotting time and the prothrombin time are prolonged, the most common deficiency is of Factor VII.

The properties of prothrombin, Factor V and Factor VII lend themselves to identification by both simple and more difficult laboratory methods. Factor V is not present in normal 48 hour serum. Factor VII and prothrombin are absorbed when normal plasma is treated with BaSO₄ (Table II)*. The clotting defects may be corrected if Ba SO₄ treated plasma and 48 hour serum are added to the unknown samples of blood to be tested. The results will be as follows:

	<u>Normal BaSO₄ treated plasma</u>	<u>Normal 48 hour serum</u>
Factor V deficiency	Corrected	Not corrected
Factor VII deficiency	Not corrected	Corrected
Prothrombin deficiency	Not corrected	Not corrected

A second procedure that can be used to differentiate is the two-stage prothrombin time. This consists in diluting plasma, after it has been defibrinated with a minute amount of thrombin and converting all the prothrombin to thrombin by adding thromboplastin and calcium. The thrombin is determined by the speed with which it coagulates a fixed amount of fibrinogen. Prothrombin is measured in units, one unit being the amount required to form one unit of thrombin; the latter is the quantity which will cause clotting of 1 cc of fibrinogen solution in 15 seconds. The normal amount is 300 units/cc or 100%. The original method

* Refer to U.S. Navy Medical News Letter 43(9): 12, 13; May 1, 1964.

did not eliminate either of the plasma accelerator factors as variables. A subsequent modification of the test eliminates Factor V as a variable by adding Factor V in the form of diluted beef serum (Ware-Seegars modification).

If the original and the modified technique of the two stage prothrombin determination are performed on the same sample of blood, deficiency of Factor V can be determined.

	<u>Original</u>	<u>Modified</u>
Prothrombin deficiency	delayed	delayed
Factor V deficiency	delayed	normal
Factor VII deficiency	delayed	delayed

Another point of differentiation is that in Factor VII deficiency, the prothrombin consumption is normal. This cannot be fully explained on the basis of the present knowledge concerning this factor. It has been postulated that the reason for the normal prothrombin consumption time is that the role of Factor VII lies in the initial phases of clotting, and its effects do not extend to the time when it will affect prothrombin consumption.

Calcium

Deficiency of calcium is never of clinical significance insofar as the clotting mechanism is concerned. A patient would die of other manifestations of hypocalcemia before the clotting mechanism became defective.

Fibrinogen

The loss of a peptide (or peptides) is not generally accepted as occurring during transformation of fibrinogen to fibrin.

Afibrinogenemia and hypofibrinogenemia are comparatively rare conditions; both may be congenital. Hypofibrinogenemia may accompany severe infections, burns, poor gastrointestinal absorption of proteins, certain malignancies, pernicious anemia, scurvy, pellagra, severe liver damage, and premature separation of the placenta.

Complete absence of fibrinogen results in complete incoagulability of the blood. Bleeding times may be normal or markedly prolonged. The coagulability of the blood cannot be induced by the addition of any agent other than fibrinogen.

Fibrinolysin

Fibrinogen is destroyed by an enzyme, fibrinolysin. At times hemorrhage following thoracic surgery or abruptio placentae is believed to be due to the release of excessive amounts of fibrinolysin into the circulation. Recently drugs

have been developed which are fibrinolytic, i. e., dissolve blood clots. Those drugs may also induce fibrinogenopenia.

There is no completely satisfactory test for excessive fibrinolysin activity in the plasma. It is not yet possible to differentiate between fibrinolysin itself, and an "activator" which converts profibrinolysin to fibrinolysin. As a practical laboratory exercise blood clot lysis is related to fibrinolysin activity.

(To be continued)

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MISCELLANY

DEPARTMENT OF THE NAVY
Bureau of Medicine and Surgery
Washington, D. C. 20390

BUMED 5100
BUMED-48
7 April 1964

BUMED NOTICE 5100

From: Chief, Bureau of Medicine and Surgery
To: All Ships and Stations

Subj: Department of the Navy Safety Program

Ref: (a) SECNAVINST 5100.10 of 18 Mar 1964;
same subj
(b) SECNAVINST 5100.9 of 16 Feb 1960;
Subj: Accident prevention reporting
for military personnel

1. Purpose. To provide for continuity in reporting of injuries to military personnel pending development and release of revised instructions.

2. Background. Reference (a) revises the subject program and the assignment of responsibilities for collection and reporting of data relating to injuries experienced by military personnel. Those

responsible for safety have requested that the reporting procedures in reference (b) (canceled by reference (a)) be continued until a new system may be devised and implementing instructions released.

3. Action. Addressees are requested to continue the reporting of injuries to military personnel using procedures in effect on receipt of reference (a). These procedures will be continued until new systems are devised and instructions are released in implementation of reference (a).

4. Cancellation. This Notice is canceled after taking the action requested above, or for record purposes 31 December 1964.

A. S. CHRISMAN
Acting

Distribution:
SNDL Parts 1 and 2
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Heart Dimensions Measured
Throughout Cardiac Cycles

Scientists at the National Heart Institute* have measured changes in the external dimensions of individual heart chambers throughout the cardiac cycle in intact, unanesthetized patients in efforts to study a variety of interventions, such as drugs, respiration, and exercise on the heart.

This has been done by means of silver-tantalum clips sewn to the surface. Dr. Eugene Braunwalk, NHI Cardiology Branch Chief, and co-author of a paper on this work, said, "For years investigators have realized the importance of determining cardiac volumes or dimensions, in addition to intracardiac pressures, in order to permit a more complete understanding of the mechanical aspects of the heart's activity."

* The National Heart Institute, Bethesda, Md., is one of the nine National Institutes of Health of the Public Health Service, Department of Health, Education, and Welfare.

In recent operations, the NHI scientists sewed three clips to the surface of the left ventricle, right ventricle, or both. These clips, placed as far apart as possible, were arranged in the form of a triangle whose apex lay in the ventricular outflow tract. "Careful animal studies had shown that the clips were inert and harmless to heart tissue," Dr. Braunwald said.

Three months to a year after operation, cineradiograms were obtained on each patient. The films, recorded with a 16 mm camera, were subsequently projected and the distances between the clips measured on each frame. These measurements were correlated with EKG tracings, arterial pulse pressures, heart-chamber pressures, and other data which had been recorded while the films were being taken.

Since the cineradiograms were taken in the frontal plane, serious measurement errors could result from the rotation of the heart in the sagittal plane during the cardiac cycle. To eliminate this possible source of error, biplane studies were done on each patient so that suitable corrections might be made. The studies showed that these errors were trivial if the clips had been properly positioned.

The scientists used this technique to measure ventricular dimensions during respiration and exercise. Such measurements had never before been made in intact, unanesthetized human subjects.

The studies showed that, as the patient inhales deeply, the reduced pressure in the thoracic cavity results in increased venous return and an increase in right-ventricular size (average increase: 12.5%). The subsequent increase in right-heart output is followed, usually 2-3 heartbeats later, by a smaller increase in left-ventricular size. Increased intrathoracic pressure during the Valsalva maneuver produced a striking decrease in right-ventricular size, followed some 1-5 cycles later by a smaller decrease in left-ventricular size. These observations indicate that changes in heart filling pressure can modify heart output in accordance with Starling's Law.

When the patients performed light exercise on a bicycle ergometer, right ventricular dimensions decreased by 6.0% at the end of diastole and 5.6% at the end of systole. Left-ventricular dimensions decreased by 5.1% and 6.5% respectively. Despite the considerable reduction in heart size, there was an increase in the vigor of ventricular contraction, probably resulting from the release of norepinephrine in the heart by increased sympathetic nerve discharges. —From Circulation Research XIII(5): 448-467, 1963.

* * * * *

New Honor for Navy Prosthetic Research Laboratory USNH - Oakland, California

The Navy Prosthetic Research Laboratory at U. S. Naval Hospital, Oakland, has been certified by the American Board for Certification in Orthotics and Prosthetics, Inc. This word came to RADM C. L. Andrews MC USN, Commanding Officer, in a letter from board headquarters in Washington, D. C.

The laboratory, now a division of the hospital's Orthopaedic Service, continues to conduct a three-part program for specialized treatment of amputees and other orthopaedic casualties of the Armed Forces.

Present amputee rehabilitation facilities consist of (1) a testing and development unit for the conduct of research in the field of prosthetics, orthotics, and rehabilitation; (2) a training unit, including classroom and student shop facilities for the conduct of a one-year course leading to the rating of Orthopaedic Appliance Mechanic; and (3) a production unit for manufacture and fitting of artificial limbs, orthopaedic braces and associated appliances.

Amputee patients and candidates for amputation are either admitted directly or transferred from other Armed Forces medical facilities. Following individualized treatment they are returned to duty, returned to the referring facility or otherwise follow appropriate disposition channels. Each amputee is thus fitted, trained in the use of the prosthetic limb or appliance provided and thoroughly oriented in his new physical status on discharge.

The School for Orthopaedic Appliance Mechanics follows a curriculum combining classroom and on-the-bench training. Graduates, which have included enlisted men from Army, Navy, and Air Force, are equivalent to first-class apprentices. Many of them sustain interest in the specialty and eventually become certified.

The laboratory staff includes three certified prosthetist-orthotists and one certified orthotist. Much of the work that has led to certification has also been accomplished by non-certified members of the staff, both military and civilian.

Research and development are major activities of the laboratory. Productive pioneering accomplishments in the past include "firsts" in laminated plastic limbs, above-knee suction sockets, below and above knee flexible, resilient sockets and the now-popular total contact fitting concept. Most recently an air-exchange valve to prevent collection of perspiration with below-knee and arm stump sockets has been reported and is now commercially available. A plan to adopt the valve for use in above-knee sockets is in the prototype stage. To be announced soon is an entirely new orthopaedic brace production technic which may substantially reduce production costs. Additionally, a simple, mechanical knee unit for swing phase control is about to be presented to the Committee on Prosthetic Research and Development of the National Research Council.

A study holding considerable potential for amputees is in its preliminary stage. It deals with acceleration of the fitting and treatment of amputee patients from the time of amputation until return to duty or discharge from the service.

Since its organization at Mare Island in 1943, the Navy Prosthetic Research Laboratory has published sixty-two significant articles and technical reports on prosthetics, orthotics, and associated rehabilitation techniques.

Mrs. Joseph R. Breuer Receives Citation
at USNH - Oakland

When Vice-Admiral Maeng Kee Lee, Chief of Naval Operations of the Korean Navy, visited the Korean Consulate in San Francisco March 28 en route home from a tour of U. S. naval installations, he delivered a citation to Mrs. Joseph R. Breuer in recognition of her services to Korean trainees at U. S. Naval Hospital, Oakland, where she is a volunteer Red Cross worker.

"Mrs. Breuer has shown keen interest in providing both material and spiritual assistance to the officers of the ROK Navy who are training through the Military Assistance Program," the citation read. "Especially, Mrs. Breuer has contributed to the enhancement of the morale of the officers of the ROK Navy through her various activities including English conversation classes, orientation tours and invitations to American homes.

"The spontaneous and valuable effort she has made in helping and winning the friendship of Korean officers has contributed greatly in the development of improved training effectiveness as well as a greater understanding of the United States. Her philanthropic spirit of assistance and cooperation is I believe in keeping with the true traditions of the people of the United States of America and is a credit to herself and to her fellow citizens."

The presentation was made in the office of Consul General In Han Paik, with RADM C. L. Andrews, Commanding Officer of Oakland Naval Hospital, Miss Susie Schmitt, Red Cross Recreation Director, Mrs. Andrews, Miss Joan Mathews, Red Cross Field Director at Oak Knoll, Mr. Breuer and eight Korean officers from Mrs. Breuer's current class attending. A luncheon at a Korean restaurant in Berkeley followed the ceremony.

Only last July, Mrs. Breuer received the U. S. Secretary of Navy's Meritorious Public Service Citation for her "outstanding contributions to the Department of the Navy in the fields of education and international relations."

* * * * *

LT Robert N. Conrad MC USN, received the Navy Commendation Medal from the Secretary of the Navy on 8 April 1964 for service set forth in the following CITATION:

"For heroic service on 1 August 1963 while serving with Marine Medium Helicopter Squadron 261 in support of the First Corps, Army of the Republic of Vietnam. Voluntarily accompanying a helicopter rescue team into enemy territory to attempt the rescue of two air-men who were shot down over mountainous jungle terrain by hostile automatic weapons fire. Lieutenant Conrad, as flight surgeon, was the first to be lowered into the landing zone via the rescue hoist at a time when there was no security established. Along with a corpsman, he pried the two seriously injured victims from the tangled

wreckage, rendered immediate first aid, and then carried the men over the extremely steep, slippery terrain to the suspended rescue sling to be hoisted into the hovering aircraft. His professional skill, cool courage, and selfless efforts in behalf of the two downed airmen were in keeping with the highest traditions of the United States Naval Service. "

S/ Paul H. Nitze

Secretary of the Navy

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FROM THE NOTE BOOK

Announcement of Correspondence Course

The Medical Department Correspondence Course "Fundamentals of X-ray Physics and Technique," NavPers 10702-A, is now ready for distribution to eligible regular and reserve officer and enlisted personnel of the Armed Forces. Applications for this course should be submitted on Form NavPers 992 (with appropriate change in the "To" line), and forwarded via appropriate official channels to the Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda, Md., 20014.

This correspondence course is intended for officers and enlisted personnel of the Naval Medical Department. The Naval Medical officer should gain appreciation for the radiological services that he can expect to be provided by hospital corpsmen at naval hospitals, shore dispensaries, and ships at sea. This course should increase the knowledge of the enlisted personnel, especially those who are not radiological technicians, help them perform their duties more efficiently, serve as a foundation for further study, and awaken in them a deeper appreciation of their professional responsibilities.

Although the textbook is not a complete treatise on radiology, it does contain enough of the fundamentals to be valuable to Medical Department personnel. The student should learn sufficient anatomy and operating principles of equipment to understand procedures in the radiological laboratory.

The course is composed of eight objective-type assignments and is evaluated at eighteen Naval Reserve promotion and/or nondisability retirement points. These points are creditable only to personnel eligible to receive them under current directives governing retirement and/or promotion of Naval Reserve personnel. Personnel who completed NavPers 10702 will receive additional credit for completing this revision.

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Naval Medical Research ReportsU. S. Naval Medical Research Unit No. 3, Cairo Egypt

1. Comparative Internal Morphology of Subgenera of Argas Ticks (Ixodoidea, Argasidae), 3. Subgenus Secretargas: Argas transgaripepinus: MR 005.09-1402.3, October 1963.
2. Leishmaniasis in the Sudan Republic. 16. Seasonal Incidence of Phlebotomus Species (Diptera: Psychodidae) in an Upper Nile Province Town and Village: MR 005.09-1603.10, June 1963.

U. S. Naval Medical Research Unit No. 4, Great Lakes, Ill.

1. Rapid Calibration of Microtitration Diluting Loops by Refractive Index Methods: MR 005.09-1300.1, March 1964.

U. S. Naval Air Development Center, Aviation Medical Acceleration Laboratory, Johnsville, Penna.

1. Psychological Problems in Disorientation: MR 005.13-0005.7 Report No. 8, December 1963.

U. S. Naval Medical Research Laboratory, U. S. Naval Submarine Base, New London, Conn.

1. Respiratory Adaptation to Chronic Hypercapnia: MR 005.14-3002-1.09 Report No. 418, December 1963.
2. Critical Visual Areas of Explosive-Actuated Lens Filter (ELF) System for Prevention of Flash Blindness: MR 005.14-0100-1.01, January 1964.

U. S. Naval School of Aviation Medicine, Naval Aviation Medical Center, Pensacola, Fla.

1. Labyrinthine Function Related to Experiments on the Parallel Swing: MR 005.13-6001 Subtask 1 Report No. 86, September 1963.
2. The Protective Effect of Xylocaine on the Tolerance of Vibrated Rats to Explosive Decompression: MR 005.13-1002 Subtask 17 Report No. 6, November 1963.
3. Personality Orientation and Success in Naval Aviation Training: MR 005.13-3003 Subtask 1 Report No. 38, December 1963.
4. A Note on Ocular Motility During Side-to-Side Oscillation on the Parallel Swing: MR 005.13-6001 Subtask 1 Report No. 91, January 1964.
5. Phase Relations Between Sinusoidal Ocular Displacement and Parallel Swing Displacement in Normal and Labyrinthine-Defective Subjects: MR 005.13-6001 Subtask 1 Report No. 92, January 1964.
6. Observations on the Burning of A Candle at Zero Gravity: MR 005.13-1002 Subtask 11 Report No. 5, February 1964.

Aerospace Crew Equipment Laboratory, U. S. Naval Air Engineering Center, Philadelphia, Penna.

1. A Study to Determine the Relationship Between Naval Aircrew Station Dimensions and the Anthropometry of Naval Aviators: MR 005.13-9040.1.

Naval Medical Research Reports, Philadelphia, Penna., (Continued)

2. Determination of Respiratory Requirements for Gas Mixtures in Manned Space Capsules: MR 005.13-1006.1, March 1964.

U. S. Navy Medical Neuropsychiatric Research Unit, San Diego, Calif.

1. Effective Individual Performance in Small Antarctic Stations: A Summary of Criterion Studies: MR 005.12-2004 Subtask 1, April 1963.
2. Adaptation of Small Groups to Extreme Environments: MR 005.12-2004 Subtask 1, April 1963.
3. Personal History Correlates of Performance Among Military Personnel in Small Antarctic Stations: MR 005.12-2004 Subtask 1, November 1963.
4. Biographical Indicators of Adaptation to Naval Service: MR 005.12-2004 Subtask 1 Report No. 63-19, November 1963.
5. Past Experience, Self Evaluation, and Present Adjustment: MR 005.12-2004 Subtask 1, December 1963.
6. Habituation of the Orienting Response in Alert and Drowsy Subjects: MR 005.12-2304 Subtask 1 Report No. 63-17, December 1963.

U. S. Naval Radiological Defense Laboratory, San Francisco, Calif.

1. Fluorometric Analysis of Amidase and Alkaline Phosphatase in Neonatal Rat Thymocytes: Peak Activities at Two Days of Age: MR 005.08-5200 Subtask 3, November 1963.
2. The Bioelectrical Response of the Insect Eye to Beta Radiation: MR 005.08-5201 Subtask 2, November 1963.
3. A Renal Lesion Associated With Diuresis in the Ageing Sprague-Dawley Rat: MR 005.08-5201 Subtask 2, December 1963.
4. Carcinogenesis by Fast Neutrons Relative To X-Rays in Mice: Effect of Uninephrectomy and of CCL₄: MR 005.08-5200, January 1964.
5. Heterotopic Partial Autotransplantation of Rat Liver: Technique and Demonstration of Structure and Function of the Graft: MR 005.08-5201 Subtask 1, January 1964.
6. A Persistent Bone Growth Deficit in the X-Irradiated Rat: MR 005.08-5201 Subtask 2, February 1964.

U. S. Naval Medical Research Unit No. 2, Taipei, Taiwan.

1. Intestinal Parasites of Man in Leyte, Republic of the Philippines: MR 005.09-1601.1.3, August 1963.
2. Epidemic Keratoconjunctivitis on Taiwan: Etiological and Clinical Studies: MR 005.09-1201.10.6, September 1963.
3. *Macacananema formosana* n. g., n. sp. (Onchocercidae: Dirofilarinae) from *Macaca cyclopsis* of Formosa: MR 005.09-1601.3.10, September 1964.
4. The Ecology of Japanese Encephalitis Virus: Report No. 63-2, December 1963.
5. Prevention of Trachoma with Vaccine: Report No. 63-3, December 1963.

DENTAL**SECTION**A Preventive Dentistry Program

LT L. J. Guarnieri DC USN, prepared the following article upon completion of the course, "Preventive Dentistry, " directed by CAPT G. H. Rovelstad DC USN, at the Naval Dental School, NNMC, Bethesda, Md. Using this as a framework, LT Guarnieri has implemented an excellent Preventive Dentistry Program at the Naval Air Station, Norfolk; and he has stimulated comparable efforts at other dental activities of the FIFTH Naval District.

Under stimulus of the need to increase military effectiveness and minimize the loss of man hours resulting from oral disease, the organization, development and institution of an efficient preventive dental program is imperative. Basically the objectives of such a program can be stated simply. They are synonymous with the ideal goals of the dental profession: oral disease must be prevented and controlled. As a result of continuing dental research, dentists are learning that prevention is the greatest hope for improvement in oral health care. The key figure in the organization, development and implementation of an effective program of preventive dental care, is the dental practitioner himself. Each individual dentist must be aware of the latest results of scientific research as it creates a new philosophy of dental treatment. He must be taught how to utilize these results and how to communicate them to his patients in ways they can understand and practice.

A preventive dentistry program cannot be achieved overnight or without the organized energies of each individual responsible for the improvement of dental health. Therefore, each person, civilian and military, working in a dental facility must be educated in the latest modes of preventive dentistry by specially trained personnel.

A separate district preventive dentistry officer should train personnel, disseminate information to dental facilities and be available for consultation concerning unusual problems. The duties of this preventive dentistry officer should include the examination of each facility in order to make recommendations for a practical program suited to meet each facility's needs.

Brief Outline of a Preventive Dentistry Program**A. Station Level**

1. Plan of day: slogans on tooth care
2. Station newspaper: articles and pictures on oral health
3. Station movie: flash-on slides of educational information

- A. Station Level (cont'd)
 - 4. Station indoctrination and familiarization programs: lectures and discussions using audio-visual aids (e. g., to be given at a practical time and location.)
- B. Departmental Level
 - 1. Examining officer (diagnosis, immediate treatment and education.)
 - 2. Oral hygiene section
 - 3. Attractive educational material in waiting rooms
 - 4. Periodic verification of records by examination and x-ray
- C. Dental Office Level
 - 1. Proper diagnosis and treatment plan
 - a. Clinical
 - b. Radiographic
 - c. Laboratory tests as necessary
 - 2. Proper corrective treatment (prophylaxis, restorations, periodontics, etc.)
 - 3. Proper preventive dental treatment
 - a. Use of stannous fluoride paste (prophylaxis)
 - b. Use of stannous fluoride topical
 - 4. Education of the patient
 - a. Use of diagrams and models with printed materials
 - b. Demonstrations of techniques
 - c. Advice on diet as it affects oral health
 - d. Advice on home dental care
- D. Home Level (as carried out by the patient)
 - 1. Use of proper toothbrushing technique
 - a. Frequency
 - b. Periodicity
 - 2. Use of disclosing tablets to aid in testing brushing techniques
 - 3. Use of stannous fluoride dentifrices
 - 4. Individual adjustment of diet to improve oral health:
 - a. Avoiding excess snacking
 - b. Avoiding excess use of sugar
- E. Community Level
 - 1. Planned demonstrations and lectures to children at base school (s)
 - 2. Planned lectures to answer requests concerning preventive dentistry from community groups to be given by dental officers

The following facts make the institution of a preventive dentistry program (carefully planned, instituted and administrated) an absolute necessity: (1) "There are numerous studies which show that dental disease affects approximately 95% of the total population, and that clinical capabilities are inadequate to provide all of the required treatment." ¹ (2) "The record of rejections among draftees in two world wars, moreover, makes it obvious that better dental care is essential from the point of view of national security." ² (3) "Seventy-nine per cent of the group (of naval recruits) had recognizable gingivitis at time of examination." ³

References

1. Bernier, J. L., and McFall, T. A., "Role of Prevention in Military Dentistry" Journal of the American Dental Association 62: 717, June 1961.
2. Commission on the Survey of Dentistry in the United States, Dentistry in the United States, American Council on Education, Washington, D. C., pg 21, 1961.
3. Rovelstad, G. H., et. al. "Survey of Dental Health of the Naval Recruit. I. Status of Dental Health," Journal of the American Dental Association 58: 60-68, May 1959.

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The Healing Rate of Bone After the Production of Defects by Rotary Instruments

Robert G. Calderwood, Sylvester S. Hera, and John R. Davis, Department of Oral Surgery, College of Dentistry, University Hospital, and Department of Pathology, College of Medicine, State University of Iowa. J D Res 43(2): 207-216, March-April 1964.

The current conflict of opinions on the use of either conventional or high speed equipment to remove bone during impaction or other procedures stimulated this study to compare the two.

The observations of the healing progress following surgical procedures lead to the following conclusions: (1) The surgical bur turning at conventional speed and the round bur turning at high speed produce defects that heal faster than those produced by the other instruments. (2) The defects made by the cross-cut fissure bur at high speed heal at a slower rate, possibly because of its poor end-cutting characteristics. The defect produced by the diamond stone healed at an extremely slow rate. (3) Possibly the most efficient bur shape for the high speed is one combining the efficiencies of the cross-cut and the round, as in the high-speed surgical burs now marketed. (4) Since the high-speed surgical cross-cut bur and the conventional surgical bur have essentially the same effect on the rate of healing in bone, the high speed is to be preferred because it shortens the length of the procedure noticeably and is, consequently, less wearing on both the patient and the practitioner.

The full article presents in an excellent manner the experimental design and histologic findings on which these conclusions were based.

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Adjustment of Fluoride Content of Communal Water Supplies at Military Installations

BUMEDINST 11330. 1A "Adjustment of fluoride content of communal water supplies at military installations," places the responsibility for monitoring base

water fluoridation upon the sanitary engineers at each activity. However, the dental officer at each shore facility has a professional responsibility to maintain a collaborative relationship with his engineering department and to provide professional support.

The importance of this liaison between the Dental and Engineering Departments was emphasized by a recent report from one activity. The dental officer at this activity visited the water department and noticed the fluoridating equipment not in operation. Questions determined that the operators were not concerned, for their instructions merely stressed the dangers of over-fluoridation. Proper consultation restored operation of the equipment and continued contact will insure the maintenance of the proper fluoride concentration.

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Self-Treatment of Malocclusion*

T.D. Foster, School of Dental Surgery, Univ of Birmingham, England. D. Practitioner 14: 90-92, October 1963. From Dental Abstracts 9(2): 109, February 1964.

Patient cooperation can't go much further than the self-treatment achieved by this intelligent boy. When referred for orthodontic treatment at the age of 11 years, he had a Class II, division 1 malocclusion. His lower lip rested behind his upper incisors and contracted behind the upper incisors on swallowing. The lower incisors were retroclined and the upper incisors proclined and spaced. Roentgenograms revealed that all four second bicuspids were missing. It was decided to delay orthodontic treatment until the eruption of the permanent upper cuspids. On examination a year later, it was found that he had a Class II, division 2 malocclusion which appeared to be so good as to require no treatment.

Questioning revealed that at the visit one year earlier he had heard the explanation being made to his mother that it would be necessary to retract his upper incisors so that they were covered by his lower lip. He decided to try to help himself. Every night when he went to bed he moved his mandible forward so that his lower incisors were in front of his upper ones; he had tried to drop off to sleep with his jaw in that position. As a result, he had successfully treated himself.

For such self-treatment to be successful, the factors which go to make up a normal occlusion should be present from the beginning. The patient's intelligence is probably an important factor. It would be interesting to see whether other patients with similar characteristics could be persuaded to treat themselves in a similar way.

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Personnel and Professional Notes

American Board of Oral Surgery. Three members of the Navy Dental Corps were recently examined by the American Board of Oral Surgery. All three were successful and are now certified in the specialty of Oral Surgery. Congratulations to CAPT David V. Castner, Jr., DC USN, CAPT Ernest W. Small DC USN, and LCDR James F. Kelly DC USN and their teachers for this recognition of many years of concentrated work.

Important Posts Filled by NDS Officers. Two officers from the U. S. Naval Dental School, NDMC, Bethesda, Md., have been named to important posts. CAPT Louis S. Hansen DC USN was elected President of the American Academy of Oral Pathology at the group's 18th annual meeting in April, and CAPT G. H. Rovelstad DC USN, was installed as Secretary-Treasurer of the International Association for Dental Research at the organization's 41st annual meeting in March. CAPT Hansen is Head of the Officer Education Department at the Dental School, and CAPT Rovelstad is Assistant Head of the Department and Research Coordinator of the School.

Dental Interns Selected for FY 1964. The Dental Division, Bureau of Medicine and Surgery, recently considered 47 dental student applicants for appointment to the Dental Intern Training Program. The Bureau of Naval Personnel approved an increase this year from 18 to 32 participants. Thirty of the 32 selected were in the Ensign 1925 program. Those selected were also required to qualify for appointment to USN. In the event that any of the candidates are not assigned to the Dental Intern Training Program, they will be appointed as lieutenants (jg) in the Dental Corps of the Naval Reserve.

Dental Service Warrants Selected for Promotion. Congratulatory letters from RADM F. M. Kyes DC USN, Chief of the Dental Division, were sent to five Chief Dental Service Warrant Officers upon their selection for promotion. Those selected were:

Morton H. Beckley	CDSW-3 to CDSW-4
Lester K. Cunningham	CDSW-3 to CDSW-4
William J. Huttig	CDSW-3 to CDSW-4
Alan G. Hayes	CDSW-2 to CDSW-3
Cecil W. Toole	CDSW-2 to CDSW-3

Navy Dentist Lectures at Tri-Service Meeting. CAPT D. E. Cooksey DC USN, Commanding Officer, U. S. Naval Dental Clinic, Yokosuka, Japan, presented a lecture before the Tri-Service Dental Officers of the Kanto Plains area of Japan. The subject of the lecture was, "Infections of Dental Origin." Among the 65 dental officers in attendance was RADM H. P. Riebe DC USN (Ret.).

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PREVENTIVE MEDICINE

Malaria Eradication in 1962*

WHO Chronicle 17(9): 335-350, September 1963.

Training of National Malaria Eradication Staff. Two senior courses were held in Moscow, the associated field training being given in Turkey and Syria. A new international training center (English language) was opened at Lagos, Nigeria. A sister training center at Lome, Togo, to cater for the needs of French speaking countries will be opened in the near future. It was expected that the training center in the Philippines would reopen and that formal courses would begin late in 1963. In all, some 260 students from 56 countries received training in malaria eradication techniques at these international centers.

During the year, WHO continued to support the established national training centers in Ethiopia, India, Iran, and Pakistan. The WHO advisory staff, in addition to giving direct aid in the preparation and presentation of specific courses, helps national staff in the preparation of teaching aids.

Planning and Organization. WHO is doing its utmost to ensure that malaria eradication programs have the full support and participation of the general health services of the country from the beginning of the campaign; it is of the greatest importance that such support and participation be forthcoming unstintingly during the consolidation phase and that the public health service be prepared to accept full responsibility for the maintenance phase of the program when the national malaria eradication service, having fulfilled its function, is disbanded.

Spraying Operations. Although there has been no important change during the year in methods of spraying, there has been increasing acceptance of the need for greater field supervision.

The vast scale of these spraying operations is shown by the fact that more than 50,000 tons of insecticide are consumed annually in malaria programs, distributed in nearly a million drums to 25,000 spraying squads. The insecticide is mixed with 200 million gallons of water (occasionally kerosene) and sprayed on the inside walls and ceilings of 100 million houses at intervals of 6-12 months. The amount of insecticide consumed annually costs some

* Concluded from the Medical News Letter, Vol. 43, No. 7, 3 April 1964.

\$30,000,000, and the transport and spraying equipment used, a quarter of which needs to be replaced every year, represents an investment of another \$30,000,000.

Chemotherapy. Chemotherapy continues to be used as the main antimalarial measure in the consolidation phase of eradication programs, its purpose being to eliminate all residual or imported infections and thus to ensure ultimately the complete eradication of the disease. As a precautionary measure, single-dose treatment is usually given to all suspected malaria cases, followed by radical treatment after confirmation of the infection by microscopic examination. The serious difficulties encountered in many programs in providing for prompt radical treatment of all confirmed cases have again emphasized the need for an efficient rural health service as an essential prerequisite to the consolidation phase. The building up of such a service is one of the main aims of the pre-eradication programs now being adopted by an increasing number of countries. Mass drug administration, either by tablets or by medicated salt, has its main application in the attack phase of an eradication program.

Epidemiological Services. The methods adopted in epidemiological evaluation and surveillance operations, based on the experience gained since the inauguration of the global malaria eradication program, have been compiled in a "Manual on Epidemiological Evaluation and Surveillance," prepared in Geneva, in 1962.

The development of the idea of independent assessment by teams not directly connected with the executive part of the malaria eradication program but containing members of the public health service (as in India) has given prominence to the WHO epidemiological criteria regarding the interruption of transmission and withdrawal of spraying.

From the point of view of quantitative assessment, an increase in the annual blood examination rates can be seen in all programs in the consolidation phase, and even during the last year of the attack phase. The malaria service has also undertaken to examine slides submitted by hospitals and dispensaries and to inform them of the results within 48 hours. The total number of blood slides examined in malaria eradication programs in 1962 was 36 million.

A major concern in areas in the maintenance phase is to prevent the reintroduction of malaria. In order to assist national public health services in this task, WHO began in 1962 the periodical publication in the Weekly Epidemiological Record of information on the epidemiological status of malaria. This will enable the health authorities of a country to appraise the degree of danger of reintroduction of malaria from other parts of the world.

Another problem is the persistence of a few cases due to Plasmodium malariae, which occur mainly as a result of blood transfusions.

Co-ordination. Within a country, cooperation and co-ordination are required between the general medical and health services, the malaria service, the public services as a whole, and the general public. At the governmental level, inter-departmental coordination must be assured by the creation of national coordination committees. Coordination is required between neighboring countries to

ensure that most effective and economical conduct of operations in border areas and to synchronize progress towards the goal of eradication, thus reducing the risk of importation of fresh cases.

Every effort was made to maintain the closest collaboration with the different international and bilateral agencies assisting countries in malaria eradication. During the year, UNICEF cooperated with WHO in furnishing material assistance to 33 malaria eradication programs, of which 21 were located in the Americas. UNICEF also gave assistance to the pre-eradication survey in the Sudan Republic. AID assisted in 17 malaria programs (10 in the Americas) and cooperated with the Pan American Sanitary Bureau (PASB), the WHO Regional Office for the Americas, in running the malaria eradication training center at Kingston, Jamaica. To ensure the greatest possible collaboration between AID, UNICEF, and WHO, a 5th meeting of an informal coordinating committee of these agencies took place in Washington in December, 1962.

Pre-eradication Program. The criteria necessary for the establishment of a malaria eradication program are that eradication should be technically, administratively and practically feasible, and that the program should be planned with object of eradication on a country-wide scale.

Technical feasibility implies the possibility of indicating the processes that would result in an absolute interruption of transmission in any epidemiological circumstances that might be encountered.

Administrative feasibility implies the possibility of creating an organization that would deploy the skills and resources necessary to secure and maintain the interruption of transmission over a sufficient area and with sufficient uniformity for a sufficiently long period of time.

Practical feasibility implies that the mechanism required for these processes is within the financial and material resources available to the government concerned, and that open communications, freedom of movement, and the cooperation of the public will be sufficient to make it possible to ensure total coverage in the application of insecticides and to secure adequate country-wide surveillance and maintenance in due course.

A developing country is defined as one in which the general administration and health services have not yet reached a level that would enable it to undertake a malaria eradication program, and in which, therefore, the necessary foundations for this kind of closely coordinated, thorough, and time-limited activity have first to be laid.

A new type of assistance as a prelude to malaria eradication has been proposed which would enable a country to make good the deficiencies it had enumerated. The preliminary operations involved have been termed a "pre-eradication program," the main purpose of which is to develop the "necessary basic foundations": the health infra-structure and the national malaria service.

The health infra-structure may be defined as the rural network of public health services. By the end of the attack phase and throughout the consolidation phase, it should be able to collaborate efficiently in the detection and adequate treatment of malaria cases; and during the maintenance phase, it would be prepared to take over the responsibility of keeping the area permanently free from

malaria. In many of the newly developing countries, such a rural network could for the present be staffed entirely by auxiliary personnel.

The national malaria service is the organization that in due course will become the national malaria eradication service, with all the skill and resources necessary to secure and maintain the interruption of transmission until eradication is achieved.

A pre-eradication program is not a time-limited operation and unlike the malaria eradication program, has no strict schedule for pre-determined phases; rather its aim is orderly and purposeful growth towards full preparedness for the very exigent malaria eradication program that it is intended to precede. The keynote of the development of the rural health infra-structure in a pre-eradication program is "total coverage," but the type of health network required for the support of the malaria eradication program to follow is of the simplest, for it is not the concern of a pre-eradication program to promote the development of administrative and health services to meet a country's overall health needs. At the same time, it cannot be expected that any country will remain content with a health service designed only to meet the needs of malaria eradication, so that a pre-eradication program should always be looked upon as a true public health promotional activity.

The progress achieved in the development of a pre-eradication program is indicated by the fact that by the end of 1962 programs had started or were in the planning stage in 23 countries; 10 in the African Region; 2 in the South-East Asia Region; 4 in the Eastern Mediterranean Region; and 5 in the Western Pacific Region, and 2 in the European Region.

Problems of Malaria Eradication. For some time physiological resistance to insecticides has been recognized as an important problem, but during the last 2 or 3 years it has been realized that other technical problems may account for the persistence of transmission in areas in which transmission has not been interrupted in spite of regular spraying and good coverage.

To face the threat posed by the persistence of transmission in problem areas, WHO has encouraged the investigation of the factors that may account for it. A team for special epidemiological studies was set up with the object of assisting in the investigation of some of the problem areas of the world and also in the development of adequate methods. WHO has also devised a procedure for the screening and testing of new insecticides against malaria and other insect-borne diseases, and with the cooperation of the Governments of Uganda and Nigeria is now carrying out field trials in Africa with malathion and dichlorvos (DDVP).

It now appears that the practical significance of resistance to insecticides depends largely on which of the 2 main insecticides—DDT or dieldrin—is implicated. As far as dieldrin resistance is concerned, the situation is fairly well defined: resistance usually progresses rapidly to the point where weeding out by selection leaves a highly resistant mosquito population and the insecticide ceases to be effective. Dieldrin susceptibility test data can provide a valuable early warning about impending failure of the insecticide in the field.

The position with regard to DDT resistance of vectors is very different, and there is increasing evidence that DDT may still be effective against several of the species that have developed "resistance" or "increased tolerance" to it, for example, A. sacharovi, A. culicifacies, and possibly A. pharoensis. On the other hand, there are now several well-established instances where DDT has been in use for several years but is still failing to interrupt malaria transmission completely, despite the fact that the standard physiological tests show that the vectors have not developed any resistance or tolerance. An outstanding example of this is A. gambiae in the savannah areas of West Africa. Here dieldrin is contraindicated because of established resistance, but DDT has failed to bring about complete interruption of transmission although the vector remains susceptible. It now appears that the explanation of this apparent anomaly is found in the behavior of the vectors concerned, particularly their reaction to the well-known irritant quality of DDT deposits. In the problem areas it is clear that when DDT is the insecticide concerned the behavior of the vector may be the principal factor involved, even where recorded resistance to DDT might appear to offer the obvious explanation for failure to achieve control. The study of the behavior of the vector in the presence of insecticide is still at an early stage, and further investigations may reveal that irritability is not the only aspect to be considered. The consequences for the success or otherwise of insecticide treatment are being kept in mind, particularly with regard to the new organophosphorus and carbamate insecticides now becoming available for field use.

Drug Resistance. Since October, 1960, drug resistance has attracted renewed attention, following reports of the occurrence of a P. falciparum strain with a high degree of tolerance to chloroquine. This strain, which seems to have originated in Colombia, was isolated from a non-immune patient who had worked in Colombia and had suffered from frequent malaria attacks in spite of repeated treatment with chloroquine. The strain was investigated in the National Institutes of Health and found to have a high tolerance, not only to chloroquine but also to other 4-aminoquinolines.

Chloroquine being at present the most widely used drug in eradication programs, it is obvious that widespread resistance to this and similar drugs would present a serious problem in malaria eradication. It is therefore necessary to maintain a close watch on the situation and analyze carefully any reports on alleged drug resistance in the field. The hypothesis of drug resistance should be considered only after inadequate treatment or drug failure have been ruled out.

Research. Research into the development of new chemotherapeutic agents has particular significance in view of the drug resistance alleged to be occurring with chloroquine in certain areas. Research is being carried out on 3 groups of potential chemotherapeutic agents.

One of the problems of practical importance in the field of immunology concerns the development of better techniques for the detection of malaria infections and for quantitative measurement of the degree of acquired immunity.

Research to this effect is being carried out in Europe and in Africa, and an exceptionally interesting application of the method of fluorescent protein tracing has been developed for the measurement of circulating antibody in African populations living in holendemic areas.

Three research developments outside the sphere of the Organization may well have a considerable bearing on the malaria eradication program. The first is the development in the U. S. A. of a long-acting injectable drug. The second is the discovery of a casual relationship between the gamma-globulin level of the blood and acquired immunity to malaria; purified gamma-globulin fractions were found to have a definite effect on the course of malaria infection. The third is the investigation into simian and animal malaria, which has led to the discovery that infections in certain groups of mosquitoes in Malaya previously thought to be due to human plasmodia were in fact due to simian or animal plasmodia.

WHO's program of research, evaluation, and testing of insecticides provides for the assessment under field conditions of any new insecticide of potential value as an alternative to the chlorinated hydrocarbons. Two insecticide field trials are currently in operation in Africa, 1 on malathion and 1 on dichlorvos (DDVP), both organophosphorus insecticides, the first applied as a residual contact insecticide, the second as a fumigant producing its effect on mosquitoes by vapor concentration. Fenthion, another organophosphorus insecticide that has been shown to be promising in preliminary and village-scale trials, requires further investigation from the point of view of its toxicity. Among other products tested, a carbamate insecticide has successfully passed through all the preliminary stages and is ready for trial in field conditions.

* * * * *

Cholera Sanitary Measures

WHO, Weekly Epidemiological Record 38(43): 535-536, 25 October 1963.

In view of the number of local areas now infected with cholera in Asia, some provisions of the International Sanitary Regulations are quoted to recall certain cholera sanitary measures which States, legally bound by these Regulations, have agreed are the maximum measures they will apply to international traffic. States have further agreed that sanitary measures and health formalities will be initiated forthwith, completed without delay, and applied without discrimination. Those States which have World Health Assembly accepted reservations have certain additional rights.

Article 69

1. No person shall be required to submit to rectal swabbing.
2. Only a person on an international voyage, who has come from an infected local area within the incubation period of cholera and who has symptoms indicative of cholera, may be required to submit to stool examination.

Article 62

1. A ship shall be regarded as infected if, on arrival, it has a case of cholera on board, or if a case of cholera has occurred on board during a period of five days before arrival.
2. A ship shall be regarded as suspected if a case of cholera has occurred on board during the voyage, but a fresh case has not occurred during a period of five days before arrival.
3. An aircraft shall be regarded as infected if, on arrival, it has a case of cholera on board. It shall be regarded as suspected if a case of cholera has occurred on board during the voyage but the case has previously been disembarked.
4. Even when coming from an infected local area or having on board a person coming from an infected local area, a ship or an aircraft shall be regarded as healthy if, on medical examination, the health authority is satisfied that no case of cholera has occurred on board during the voyage.

Article 63

1. On arrival of an infected ship or aircraft, the following measures may be applied by the health authority:
 - (a) for a period of not more than five days, reckoned from the date of disembarkation, surveillance of any passenger or member of the crew who produces a valid certificate of vaccination against cholera and isolation of all others who disembark;
 - (b) disinfections of:
 - (i) any baggage of any infected person or suspect, and
 - (ii) any other article such as used bedding or linen, and any part of the ship or aircraft, which is considered to be contaminated;
 - (c) disinfection and removal of any water carried on board which is considered to be contaminated, and disinfection of the containers.
2. Human dejecta, waste water including bilge-water, waste matter, and any matter which is considered to be contaminated, shall not be discharged or unloaded without previous disinfection. Their safe disposal shall be the responsibility of the health authority.

Article 64

1. On arrival of a suspected ship or aircraft, the measures provided for in sub-paragraphs (b) and (c) of paragraph 1 and in paragraph 2 of Article 63 may be provided by the health authority.
2. In addition, but without prejudice to the measures provided for in sub-paragraph (b) of paragraph 3 of Article 61, any passenger or member of the crew who disembarks may be placed under surveillance for a period of not more than five days, reckoned from the date of arrival.

Article 65

A ship or an aircraft shall cease to be regarded as infected or suspected when the measures required by the health authority in accordance with Article 38 and with Articles 63 and 64 respectively have been effectively carried out. The ship or aircraft shall therefore be given free pratique.

Article 66

On arrival, a healthy ship or aircraft shall be given free pratique but, if it has come from an infected local area, the health authority may apply to any passenger or member of the crew who disembarks the measures provided for in Article 61.

Article 1

1. "Medical examination" includes visit to and inspection of a ship, an aircraft, . . . and the preliminary examination of persons on board. . .
2. "Preliminary examination" may include the physical examination of any person. . . (Off. Rec. Wld Hlth Org. 56, 46) No sanitary document, other than those provided for in these Regulations, shall be required in international traffic. "

Attention is invited especially to the provisions of Article 69; only those international travelers who come from a cholera infected local area within 5 days and in addition have symptoms indicative of cholera may be required to submit to stool examination; health authorities do not have the right to require other international travelers to submit to stool examination.

Attention is also invited to the provisions of Article 34 which state in part that, "no sanitary measure, other than medical examination, shall be applied to passengers and crew on board a healthy ship from which they do not disembark (and) passengers and crew from a healthy aircraft who are in transit" and who remain or submit to stated transit arrangements.

It is to be noted that the International Sanitary Regulations have deliberately made no reference to "cholera carriers"; sanitary measures provided for in these Regulations may not be applied to "cholera carriers. "

* * * * *

KNOW YOUR WORLD

Did you know:

That the conenose or assassin bugs of the family Reduviidae are often referred to as "kissing bugs," a name that became especially prominent in the "nineties" of the last century when these insects were of popular interest in the newspapers? The name stems from the fact that occasionally the bug will suck the blood of its victims from around the tender parts of the mouth.

The bite of the Reduviids appears to produce a definite systemic disturbance similar to an allergic reaction, and sometimes a rather severe, but never fatal, illness. If the "kissing bug" is disturbed by pinching or pushing prior to inserting its beak into the flesh, it may inflict a very painful bite; under these conditions, some of the reactions to a bite often look like a very large, inflamed vaccination. A study is now contemplated to determine whether the systemic reaction caused by the bite of the "kissing bug" results from a venom or is an allergic type of reaction. (1)

That in the District of Pare (Tanga Province), Tanganyika, Africa, an outbreak of plague has occurred? All cases were bubonic except one fatal case of pneumonic plague. The first alleged cases occurred in October 1963, but none were confirmed. There was an increase in rat mortality followed, late January-early February, by a sudden increase in human morbidity.

The following figures are reported for February 1964:

Week ending 8 February:	200 cases, 9 deaths
Week ending 15 February:	131 cases, 0 deaths
Week ending 22 February:	40 cases, 0 deaths
Week ending 29 February:	84 cases, 0 deaths (2)

That since the first proved rabid bat was discovered in North Carolina in late July, 1963, approximately 100 residents have been placed on an anti-rabies immunization regimen because of definite or probable exposure to bats? Most of the instances represent unprovoked attack upon humans during the daytime hours.

In only 8 instances, bats, collected at the site of the attack, have been shown to be rabid by direct microscopic examination or by the fluorescent antibody technique.

The low incidence of proved bat rabies in the captured, peculiarly behaving bats suggests that another disease maybe responsible in many cases; one possibility presently being considered is the effect of insecticides. (3)

That 13 cases of tularemia were reported in the United States for the week ending 19 October, a total of 238 cases up to that date for 1963.

Nine of the 13 cases were reported from Arkansas, representing victims from 7 counties, and indicating increased exposure of hunters to ticks during autumn season. Tularemia is usually a tick-borne disease in Arkansas, according to the Director, Division of Communicable Disease Control, Arkansas State Health Department, who stated that there was an increase in the tick population in 1963 due to the warm, dry weather experienced in that state.

These 9 cases represent a total of 75 for 1963 (up to 19 October), whereas in the comparable period of 1962, 51 cases were reported from Arkansas. (4)

That University of California scientists have identified a single chemical substance, called ferredoxin, as the key agent in transforming light energy into the flow of electrons that drives the plant's food-building machinery?

The findings removed much of the mystery from the initial light-energized step in the process by which plants convert sunlight into chemical energy. (5)

That cases of infectious syphilis in the United States reported to the Public Health Service for fiscal year 1963 (1 July 1962 to 30 June 1963) increased

9.8% over 1962, to a total of 22,046, and the number of gonorrhea cases increased 3.7% over 1962, to a total of 270,042? This is the 6th consecutive year showing a steady rise in infectious syphilis from the low of 6,251 in 1957, the low for gonorrhea was 216,476 in the same year. (6)

That from 1950-1962, 285 million persons have been examined in internationally assisted campaigns against yaws; some 38 million were treated with long-acting penicillin, which is highly effective against this crippling disease? In campaign areas, the proportion of active cases in the population dropped from between 10 and 20% a decade ago to generally less than 0.5% by the end of 1962. (7)

Bibliography:

1. Los Angeles County Health Index, week ending 8 February 1964.
2. Weekly Epidemiological Record, WHO, 39:121-132, 13 March 1964.
3. Assistant Secretary and State Health Director, NC Board of Health, M&M Wkly Rpt 12(43): 364, 1 November 1963.
4. M&M Wkly Rpt 12(42): 346, 25 October 1963.
5. Science News Letter 83(18): 275, 4 May 1963.
6. Social Health News, Amer Soc Hlth Assoc 38(7): 1 September 1963.
7. Commonwealth of Australia, Journal of Department of Health 13(2): 40, June 1963.

* * * * *

Parking Brakes

Safety Review 21(4): 6.

Owners of many new automobiles were cautioned that under certain circumstances the "parking brake" on their car might appear firmly set, but still allow it to roll backwards freely. The Association of Casualty and Surety Companies advises that this can be especially dangerous if a driver parks his car in the family driveway, many of which slope.

The insurance organization said this condition arises because of recent changes in the design of the parking or emergency brake system of nearly all passenger cars and many light trucks.

If the parking brake is set without the simultaneous application of the hydraulic service (foot) brakes, the bottoms of the brake shoes are brought into contact with the drums on the rear wheels, but the shoes are not fully engaged. With the parking brake in this condition, the Association says, the car cannot roll forward, but it can move freely to the rear.

If, on the other hand, the motorist is pressing his foot on the hydraulic brake while he is setting the parking brake, the shoe and drum engage completely

and the car will not move. The Association emphasizes that such brakes properly applied "are well able to do their work."

As a safety precaution, the Association urges motorists to get into the habit of applying the foot brake while they set the parking brake. "No problem can occur," the Association says, "if a driver trains himself to do this; in most cases, this is the logical and normal thing to do anyway."

NOTE: Additionally, cars with automatic transmission should be left parked with the shift lever in park or "P" position—on slopes or level areas. On manual shift cars, the shift stick or lever should be left in "reverse" position with the car facing downhill, and in "low" position when facing uphill. In downhill parking at a curb the front wheel on the curb side should be turned toward and against the curb at a considerable angle—whereas, in uphill parking the front wheel on the curb side should be turned away from the curb and backed gently until the tire rests snugly against the curb at a good angle. Then lock ignition and all windows of the car to prevent children from accidentally setting the car in motion. Many of them enjoy meddling with the instrument panel, levers, and brakes.

—Editor

* * * * *

Eradication of *Aedes aegypti*

USDHEW, PHS, CDC, Atlanta, Ga. Notes on Field Operations, Vector Control Briefs, pg 8-9, January 1964.

A Public Health Service program to eradicate *Aedes aegypti*, the yellow fever mosquito, from the United States has been initiated by the Communicable Disease Center (CDC) in cooperation with the State Health Departments. On 8 October 1963, Donald J. Schliessmann was appointed Chief of the new *Aedes aegypti* Eradication Branch, which will administer the \$3 million program during Fiscal Year 1964.

The *A. aegypti* mosquito is responsible for transmission of 2 virus diseases—yellow fever, which produces a high death rate in nonendemic areas, and dengue which seldom kills but may cause severe illness and prolonged debility. Recent surveys show that the yellow fever mosquito is still present in 9 Southeastern States (Alabama, Arkansas, Florida, Georgia, Louisiana, South Carolina, Mississippi, Tennessee, and Texas) and in Puerto Rico and the Virgin Islands.

There have been no outbreaks of yellow fever in this country since 1905. The last death from yellow fever occurred in the United States in an immigrant from Mexico at Houston, Texas, in 1924. Since that date, there is no record of a case originating in the United States. However, outbreaks of dengue have occurred throughout the first half of the century and extensive epidemics have been in progress in Puerto Rico and Jamaica since the middle part of 1963.

Several people came to the United States from the Caribbean in 1963 and later developed clinical cases of dengue. With the virus of both diseases present in the hemisphere, today's rapid transportation could easily allow either or both diseases to become reseeded among A. aegypti population in this country.

The present eradication program will be part of an international effort to eradicate this mosquito from the Western Hemisphere, an effort that began almost 40 years ago in Brazil. In 1947, at the first meeting of the Directing Council of the Pan American Health Organization (PAHO), and at the meeting in 1961, a resolution was signed by member nations, including the United States for a hemisphere-wide eradication program. During the intervening period, A. aegypti populations have been cleared from the major portion of the areas outside of the United States. Now these other nations have pointed out that A. aegypti in the United States might be a possible source of accidental reinfestation of their countries. Recognizing the validity of their fears and the U. S. responsibility to support the hemispheric effort, as well as the possible hazard to the United States, in 1962 the Surgeon General, U. S. Public Health Service, committed this country to join in the eradication effort. In October 1963, Congress approved this eradication program and appropriated \$3 million for Fiscal Year 1964. Operations will begin in 1964 in Florida, Texas, Puerto Rico, and the Virgin Islands.

This 5 year eradication program anticipates Federal expenditure to total about \$50 million, with close cooperation by the States involved. Public participation is essential for success of the program.

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RESERVE



SECTION

ATTENTION: Reserve Nurse Corps Officers
on inactive duty

This is an excellent time for you to return to active duty if you are qualified and interested. We have vacancies due to normal attrition and increasing numbers for voluntary retirements. If you hold the rank of Lieutenant Junior Grade or Lieutenant and could complete 20 years of active duty before reaching age 55, you may apply. Application for recall to active duty NavPers 2929 may be obtained at the nearest naval recruiting station.

Reserve Medical Corps Officers Recommended for Promotion to the grade of Captain by the Selection Board convened on 3 March 1964.

155773

Davey, Lycurgus M.

127999

Eiseman, Ben

Reserve MC Officers Recommended for Promotion to Captain (Cont'd)

132704	Fralick, Ernest H.	336058	Morris, Robert S.
183493	Hardy, Irad B. Jr.	126892	Paul, John R. Jr.
348210	Hawkes, Clarence D.	133217	Riggsbee, John B.
132192	Lawton, Richard L.	123278	Siegel, Peter V.

Reserve MC Officers Selected for Promotion to the Grade of Commander.

568304	Ashworth, Charles R.	558714	Kelman, Edward M.
172173	Alsobrook, William L.	491592	Kennelly, John McRae Jr.
487449	Bailey, William T. Jr.	585250	Khairallah, Phillip A.
103587	Barclay, Charles O. Jr.	540205	Kirk, Thomas A. Jr.
497796	Barnard, John L. Jr.	174500	Lee, James G. Jr.
513676	Barnes, Kirk K.	492202	Llewellyn, Gene A.
534218	Bartkowski, Joseph E.	124590	MacIver, John L. Jr.
504090	Boomer, Robert B.	503920	Malkinson, Frederick D.
541057	Briggs, Leon R. Jr.	497431	McEwen, Stanley R.
269446	Bryan, Ross E. Jr.	178561	Mead, Charles A. Jr.
211558	Bunderson, Dean L.	587889	Meredith, Charles E.
495749	Callaway, Enoch III	185917	Mills, William James Jr.
490175	Chernish, Stanley M.	167285	Mitchell, Robert Edgar Jr.
215121	Clancy, Daniel H. Jr.	497985	Morgan, Frank J. Jr.
269533	Cordova, Eliseo D.	318396	Parkhurst, Edward C.
574129	Dickinson, Seldon J.	495350	Pernokas, Louis N.
488539	Dickman, Frederick Jr.	538111	Rogers, Fred B.
491778	Farrell, George R.	472586	Rowberg, Raymond G.
283389	Ferguson, Emmet F. Jr.	318895	Shea, Martin Coyle Jr.
496172	Forman, Robert B.	205874	Shelley, Edward S.
363933	Freeman, Gordon R.	523367	Slowinski, Eugene J.
235185	Frost, Dwight M.	153457	Snelling, John M. Jr.
581660	Gillen, Howard W.	582465	Stein, Robert B.
538857	Glaser, Warren	148963	Stokoe, Robert S.
575894	Hilscher, Stewart	566728	Stuckey, Walter J. Jr.
490011	Hirsch, Joe E.	496057	Swenson, Edward W.
152367	Hopkins, Enon C.	589214	Targgart, William H.
575869	Howren, Harry H. Jr.	176950	Watts, Thomas W. Jr.
487972	Imboden, Lester E.	486175	Weese, Winston H.
391546	Jauchler, Gerard W.	513517	Wright, Robert B.
	180290	Young, George G.	

Reserve MSC Officers Recommended for Promotion to the Grade of Captain by the Selection Board Convened on 3 March 1964.

122697	Cope, Oliver B.	214801	Mittelstaedt, Stanley G.
127922	Douglas, James R.	104880	Page, Robert Z.

Reserve MSC Officers Recommended for Promotion to the Grade of Captain. (Con't)

240222	Farner, Donald S.	126643	Smith, Arthur H.
366739	Housewright, Riley D.	143113	Smith, Robert E.

ANNOUNCEMENT

The Medical Department Correspondence Course "Fundamentals of X-ray Physics and Technique," NavPers 10702-A is now available to applicants. It is outlined on page 19 of this issue of the Medical News Letter.

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